REMARKS

Applicants respectfully request reconsideration of the application.

Objection to the Specification

The references at issue do not involve essential material. Non-essential material may be incorporated by reference according to 37 C.F.R. Section 1.57(d) and MPEP 608.01(p). Claims 2, 4, and 8 refer to sub-dividing a media object or media signal into segments. This aspect of the claims is supported in the specification by teachings other than the non-essential material that is incorporated by reference from the cited papers. Therefore, the objection should be withdrawn.

Rejection under 35 U.S.C. Section 112

Text in claim 4 has been rearranged such that "the prioritized segments" nor longer lacks antecedent basis.

Grounds of Rejection to be Reviewed

Claims 2, 4, 14-15 are rejected under 35 U.S.C. 102(a) as being anticipated by Debes et al., "Watermarking Scheme for Large Images Using Parallel Processing," Proc. of SPIE Vol. 4314 (2001), pp. 26-34.

Claims 2, 4, 18-24 and 26-28 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 5,960,081 by Vynne et al. ("Vynne").

Claims 2, 14-15, 20, 22, 29-30 and 32-33 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,389,421 to Hawkins et al. ("Hawkins").

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hawkins in view of U.S. Patent No. 6,374,336 to Peters et al. ("Peters").

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vynne in view of U.S. Patent No. 6,473,516 to Kawaguchi et al. ("Kawaguchi").

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,611,830 to Shinoda in view of Vynne.

Claims 2, 4, 14-15 are patentable over Debes

Claim 2

Debes is not prior art because claim 2 has priority to 09/706,505, filed November 2, 2000. Specifically, the '505 application teaches the elements of claim 2 as follows:

Claim language	Support in '505 application (these are only examples, and not intended to be limiting)
A method of segmenting a media object for parallel watermarking operations, the method comprising:	Page 6, line 21 to page 8, line 28. Specifically, see, e.g., page 6, line 29 to page 7 line 7.
sub-dividing the media object into parts,	See, e.g., page 6, line 29 to page 7 line 7
including specifying the parts to be embedded with corresponding digital watermark messages and providing data used to control embedding of the corresponding digital watermarking messages in the parts;	See, page 6, lines 1-20, for process of creating embedder control files. See, e.g., page 8, lines 18-28, describing how embedder control files used to specify parts to be embedded and including data to control embedding.
distributing the specified parts to parallel processors after the specifying of the parts to be embedded with corresponding digital watermark messages;	See, page 6, lines 1-20, for process of creating embedder control files. See page 6, line 21 to page 7, 17 regarding distribution of parts to parallel processors to embed watermark messages in different parts of a media signal according to the embedder control file.
and performing parallel digital watermark operations on the specified parts in the parallel processors according to the data used to control the embedding.	See, for example, page 6, line 21 to page 8, line 28.

Claim 4

The Office contends that in Debes tiles are selected to provide strongly-embedded watermarks that are more likely to carry a readable watermark signal. Applicants respectfully disagree with this interpretation. There is no connection between the ranking of blocks in Debes, which is based on "importance" (which though not specifically defined appears to relate to how interesting the image content is) and the calculation of the strength of the watermark.

As such, Debes does not teach: "analyzing the media signal to prioritize the segments of the media signal for digital watermark operations on the segments wherein the media signal segments are prioritized for digital watermark embedding operations and wherein the media signal segments are prioritized such that segments that are more likely to carry a readable watermark signal are given higher priority for the embedding operations" and "performing parallel digital watermark operations on the prioritized segments in the parallel processors according to priority order of the prioritized segments" as recited in combination with the elements of claim 4.

It also appears that the Office's interpretation of Debes would remove it as prior art because the '505 application teaches in addition to the teachings specified in the chart for claim 2 that, in one embodiment, embedding of the watermark is performed on parts (e.g., blocks) of a media signal according to teachings of 09/503,881 (now U.S. Patent No. 6,614,914 (the '914 patent)), which teaches that blocks of signal are analyzed and strength of the watermark is adjusted accordingly. See, the '914 patent at Fig. 8 and col. 17, line 53 to col. 19, line 14, and specifically, col. 18, lines 21-45, which teaches application of a gain to increase the chances of an accurate read of the watermark. Thus, based on the Office's interpretation of Debes, it is not prior art because the '505 application supports claim 4 under this interpretation.

Claim 14

Claim 14, as amended, recites: "performing parallel digital watermark operations on the segments in the parallel processors wherein the media object is segmented into blocks and the parallel digital watermarking operations are performed in priority order on the blocks based on a memory parameter of processing hardware." While Debes refers to the advantages of the tile

size relative to the L2 cache, Debes does not teach that parallel digital watermarking operations are performed in priority order on the blocks based on a memory parameter of processing hardware as claimed in combination with the other claim elements.

Claim 15

Claim 15 is patentable over Debes for at least the same reasons as claim 14.

Claims 2, 4, 18-24 and 26-28 are patentable over Vynne

Claim 2

Vynne does not distribute "the specified parts to parallel processors after the specifying of the parts to be embedded with corresponding digital watermark messages" as recited in claim 2 in combination with the other claim elements. As described in the cited passage at col. 27, lines 6-19, Vynne distributes all of the blocks in the image to the processors. In equation 7.1, the numerator is m_b, the number of blocks in the image, and the denominator is NPES, the number of processors. It is not the suitable blocks that are divided among the processors, but instead, all of the blocks in the image. Only after distributing all of the blocks, each processor selects "suitable" blocks for watermarking or not. If the Examiner's position were true, then Vynne would not distribute all of the blocks to the processors, but instead, would only distribute the selected blocks. But this is not the case.

The embedder in Fig. 6.1 reinforces this interpretation, especially in combination with the other teachings of Vynne. Fig. 6.1 shows an embedding system, which is separately implemented in and executed on each processor. In fact, Vynne at col. 26, lines 42-45, confirms that only one program exists and is executed on all processors. Vynne teaches that the image data is divided among all of the processors, which each independently compute suitability criteria and then adjust the motion vectors of suitable blocks. Vynne's teachings, therefore, teach away from the claimed method in which parts are distributed after specifying particular parts to be embedded.

The passage of Vynne at col. 32, lines 18-33 does not support the Examiner's position because it only refers to selection criteria which is used in each processor after all of the blocks are distributed to the processors.

While Vynne teaches that selection occurs before "watermarking," it does not teach that this selection occurs before distribution of the blocks to the processors.

Claim 4

This argument further augments the positions made in response to previous rejections. These positions remain valid and are not repeated here.

Claim 4 recites: "performing parallel digital watermark operations on the prioritized segments in the parallel processors according to priority order of the prioritized segments." Since this passage positively refers to "performing parallel digital watermark operations on the prioritized segments," it refers only to the segments that are in fact operated upon. In contrast, Vynne's non-suitable blocks are explicitly not selected nor operated upon as claimed. The non-selected blocks in Vynne do not correspond to "the prioritized segments." Vynne does not perform parallel digital watermarking operations on the suitable blocks in the parallel processors according to a priority order.

Claims 18-19

Applicants respectfully submit that the arguments supplied in response to the last action still remain valid and are not repeated here.

The Examiner now contends that: "Because the segmentation is based on probability of watermark detection, the combined action is also based on the probability." Applicants respectfully disagree with this interpretation and the reasoning that stems from it. In Vynne, the selection of block size and dividing a frame into blocks is fixed as part of the video compression process. When Vynne embeds and extracts the watermark, the image is already divided into blocks because this dividing into blocks is a necessary part of the motion estimation process used in video compression, and the watermark embedding and extracting process is performed on the motion vectors of the blocks that have been previously computed in the motion estimation process. In sum, Vynne's subdividing of an image into blocks is not based on probability of watermark detection, and therefore, the Examiner's argument is based on an incorrect premise.

Further, the Examiner is referring to the assignment of bits to particular blocks in cols. 22-24, as relating to probability of detection. However, the assignment of bits to particular

blocks is unrelated to segmentation of the media signal. As noted above, the video frames are divided into blocks as part of the video compression process.

Claim 19 is patentable over Vynne for at least the same reasons as claim 18.

Claim 20

The arguments provided previously are still valid. Vynne specifically states that: "Only one program exists, which is executed on all processors at the same time." Col. 26, lines 42-44. While different processors in Vynne may embed different data and a processor may have more or less blocks, it does not follow that Vynne teaches the elements of claim 20.

Claim 22 is patentable for the same reasons as claim 20.

Claim 21

When construed in combination with claim 20, claim 21 recites that different watermark functions performed by modules comprising a watermark generator, a perceptual analyzer and watermark applicator are performed on the media signal in parallel. In contrast, Vynne teaches that the same program is executed on all processors at the same time. See Col. 26, lines 42-44.

Claims 23-24 and 26-28

Vynne's thresholds are not dependent on the content of the media signal as recited in amended claim 23 in combination with the other elements. Therefore, they do not constitute a perceptual mask.

Claims 24 and 26-28 are patentable for at least the same reasons as claim 23.

Claims 2, 14-15, 20, 22, 29-30 and 32-33 are patentable over Hawkins

Applicants respectfully submit that the arguments submitted previously relative to Hawkins still remain valid. The Examiner's citations do not support the Examiner's position that "each job is a segment of a media signal." Further, Hawkins does not teach the amended elements of claims 2 and 14 in combination with the other elements of these claims.

Claim 16 is patentable over Hawkins in view of Peters as argued previously. This claim is further patentable over the combination in view of the amendment to claim 14.

Claim 17 is patentable over Vynne in view of Kawaguchi as argued previously.

Claim 34 is patentable over Shinoda in view of Vynne as argued previously. A review of the Examiner' recent citation of Shinoda at col. 3, lines 7-50 reveals that there is no support for the position that Shinoda teaches grouping web pages as a job.

Respectfully submitted,

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